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II. *A memoir on the geography of the north-eastern part of Asia, and on the question whether Asia and America are contiguous, or are separated by the sea. By Captain James Burney, F. R. S.*

Read December 11, 1817.

A BELIEF has prevailed for nearly a century, that the separation of America and Asia has been demonstrated by an actual navigation performed; and it is distinctly so admitted in the charts. It is proposed to show in this memoir, in the first place, that there does not exist satisfactory proof of such a separation; and secondly, that from peculiarities which have been observed, there is cause to suppose the fact to be otherwise; that is to say, that Asia and America are contiguous, and parts of one and the same continent. This is not an opinion newly formed, but one which many years ago was impressed on other persons as well as on myself, by circumstances witnessed when in the sea to the north of Bering's Strait with Captain Cook, in his last voyage.

America, from its first discovery by the people of Europe, was regarded by them as a land wholly distinct from their own native continent, till the failure of many attempts to discover a northern passage to India at length suggested the possibility that the Old and New World (as they were then called) formed but one continent. The solution of this problem, so far as regards a north-eastern navigation to India, has been more naturally the business of the Russians

than of any other people, as well on account of the greater facilities possessed by them for prosecuting the discovery, as for the superior benefit they would derive from a practicable navigation round their coasts to the Tartarian and Indian sea, should such be found.

The memorable voyage of SEMOEN DESCHNEW and his companions in 1648, by which the Russians first discovered the sea east of Kamschatka, (for before that time the river Anadir was supposed to run into the Icy sea), is the principal circumstance which has been admitted as proof of a complete separation of Asia and America. It is important to remark, that this admission is not so old as the expedition on which it is founded, by nearly a century ; for no certainty of an absolute navigation having been performed round a north-eastern promontory and extremity of Asia was pretended till after the year 1736, when it was inferred by Professor MULLER, from some original writings found at that time in Siberia, concerning DESCHNEW's voyage. Baron de STRAHLENBERG, who had lived many years in Siberia, and whose description of that country is of earlier date than MULLER's publication, says of the expedition of 1648, that some Russians departed from the river Lena in boats towards the east, and by that route discovered Kamtschatka. But it was not understood to have been by a clear navigation round the N. E. of Asia ; for in a description subsequently written, he says, " a class of people, to whom has been given the denomination " of Tartars, inhabit the north-eastern extremity of Asia, " concerning which a Kossak officer, named Atlassow, reported, that between the Kolyma and the Anadir were two " great promontories, which he affirmed could not both be

“ doubled by any vessel, because the west coast of the first  
 “ is barred in the summer by floating ice, and in winter the  
 “ sea there is frozen; but at the second, the sea is clear,  
 “ without ice.”

SCHEUCHZER, the translator of KÆMPFER's History of Japan, in an introduction to his translation, cites some remarks which had been published concerning the Tartars, wherein it was said, “ the inhabitants of Siberia who live near  
 “ the river Lena, and along the coast of the Icy ocean, in  
 “ their commerce with Kamtschatka, commonly go with  
 “ their ships round a Suetoi Noss [or sacred cape], to avoid  
 “ the Tschelatzki and Tschuktzki, two fierce and barbarous  
 “ nations possessed of the north-east point of Siberia.” On this vague authority SCHEUCHZER concludes, that Asia is not contiguous to America.

When Mr. MULLER first went into Siberia, no credited tradition appears to have been there current of the north-east extremity of Asia having been sailed round. Charts which were made in Siberia by people inhabiting the coasts of the Icy sea, showed *uncertainty*, and what is to be considered only as an expression of a *belief* of a great north-eastern promontory; for at that part, the coast was not defined by any outline, but left without limitation: whereas a more southern promontory, supposed the second from the Kolyma, was clearly delineated in the charts without any indication of doubt; and this last-mentioned promontory, it is evident, was the cape which was afterwards seen by BERING, and to which Captain Cook gave the name of Cape East, on account of its being the most eastern land known of Asia. In the instructions which were given by the Czar PETER the Great

for Captain BERING's voyage, the question whether Asia and America were contiguous or separate, was regarded as *undetermined*, and some Tschuktzki people, with whom BERING had communication, informed him that, "their countrymen " who traded with the Russians on the river Kolyma, always " went thither by land with their merchandize on sledges, " drawn by rein-deer, and that they had never made the " voyage by sea."

Mr. MULLER has acknowledged that from the perusal of the papers found concerning the voyage of DESCHNEW, he adopted a belief which did not before prevail, and he regarded it as a second discovery. Yet Mr. MULLER's own account fell very short of warranting a *certainly* of the manner in which DESCHNEW arrived at the Eastern Sea; and there is an irregularity in it which is perplexing. He says, ' DESCHNEW in relating his adventures speaks only incidentally of what happened to him by sea. We find no event ' mentioned till he had reached the great cape of the ' Tschuktzki. His relation, ' says Mr. MULLER, ' begins at this ' cape. It lies between the north and north-east, and turns ' circular towards the river Anadir. Opposite to the cape ' are two islands, on which were seen men through whose ' lips were run pieces of the teeth of the sea horse. With a ' favourable wind one might sail from here to the Anadir in ' three days and three nights.'

The cape or promontory which is here described is evidently the Cape East in Bering's Strait; and in a subsequent part of the account, DESCHNEW is represented to have said that this Noss ' on which the vessel of ANKUDINOW, (one of his companions) was wrecked, was not the first promontory

that had occurred, to which they had given the name of Swiætoi Noss.' The word Swiætoi signifies sacred, and is a name suitable to a promontory which could not be doubled. And this corresponds with the Siberian charts before noticed.\*

It is necessary here to explain by what means the navigators in the Icy sea were enabled to arrive with their vessels at a second promontory, without having sailed round the first. On account of the frequency of being inclosed in the Icy sea, by the drift ice, it was customary to construct vessels in a manner that admitted of their being with ease taken to pieces; by which they could be carried across the ice to the outer edge, and there be put together again. The planks were fastened and kept to the timbers only by leathern straps, in lieu of nails or pegs. The construction of the vessels in which DESCHNEW and his companions went is not specified. Mr. MULLER calls them Kotsches. Baron STRAHLENBERG says they departed eastward from the river Lena in their *boats*.

In the beginning of the 18th century, the Czar PETER the Great sent directions to the Governor of Iakutzk to collect information concerning the discoveries which had been made. In consequence of this order, several examinations and depositions were taken; and the few authentic particulars which are known of the voyage of DESCHNEW were thereby preserved. The most remarkable of the depositions which are cited by Mr. MULLER, next to what relates to the expedition of

\* It may be objected to this inference, that another cape in the Icy sea, although it has been sailed round, bears nevertheless the name of Swiætoi Noss; but it may naturally be imagined that the name was given before the difficulty had been surmounted.

DESCHNEW, is one which was made by a person named NIKIPHOR MALGIN, who stated that “ a merchant named “ TARAS STADUCHIN, did many years before relate to him, the “ deponent, that he had sailed with ninety men in a Kotsche “ from the river Kolyma towards the great cape of the “ Tschuktzki: that not being able to double it, they had crossed “ over on foot to the other side, where they built other vessels. “ The small breadth of the isthmus at the part where they “ crossed, is noticed as the most remarkable circumstance in “ this deposition.” They afterwards proceeded along the coast round the Kamtschatka Peninsula, till they came to the Penschinska gulf; and, in the short account which is given of this navigation, is found, expressed in an obscure manner, the *first* notice obtained by the Russians of the Kurilski islands.

This is a clearly described passage. Besides the expedition of DESCHNEW, and this of TARAS STADUCHIN, only one other instance is mentioned of any vessel having gone by sea from the Kolyma round the Tschuktzki coast; and this last mentioned case rests on the authority of an unauthenticated tradition, purporting that some man had gone in a vessel not larger than a skiff, from the Kolyma to Kamtschatka; and no other particular is spoken of in the report.

This was the state of the information obtained concerning the north-eastern extremity of Asia, at the time of Captain BERING's voyage. The Asiatic side only of Bering's Strait was discovered in that voyage, and the coast of Asia being there found to take a western direction, it had the effect of giving an impression, equal to demonstration, of a total separation of Asia and America. And after that time, and not

before, DESCHNEW was believed to have performed the whole of his voyage from the Kolyma to the Anadir by sea.

Many reports had circulated in Siberia of the existence of northern lands in the Icy sea ; but persons sent purposely to examine, had not found land, which much discredited the reports. A chart in which a northern land was marked was however published at Petersburg, about the year 1626, by a Colonel SCHESTAKOW, of the Jakutsk Kossaks, a man of great ability as well as enterprise. Neither SCHESTAKOW nor his chart, however, are favourably noticed by Mr. MULLER, who was in general a candid historian. On SCHESTAKOW's chart, the north land was marked with the name of the Large Country. M. de LISLE gave credit to SCHESTAKOW's map for the Large Country, which he makes appear on his own chart as a part of America, extending westward beyond the Kolyma.

Between the years 1734 and 1739, three expeditions were undertaken to ascertain the limits of Asia to the north and north-east, from which no advantage was reaped, and they were attended with circumstances of extraordinary distress and misery. These undertakings show that the boundary of Asia was not then regarded as ascertained. In 1764, a chart was sent from Siberia to Petersburg, which again showed a continuation of the American continent stretching far to the west, and opposite to the Siberian coast of the Icy sea.

Between the years 1760 and 1765, no less than four attempts were made by one and the same individual, a Russian merchant, named SHALAUROF, to sail from the Icy sea round the north-east of Asia. In the last of these attempts this en-



terprising and persevering man perished, for neither himself nor any of his people ever returned.

The information which was obtained in the first three attempts of SHALAUROF, is simply, that he arrived at an island which he named Sabedei, and beyond it sailed into a bay of the continent, which he named Tschaoon bay, which was estimated to be distant about 70 leagues to the east from the entrance of the river Kolyma. Here were found habitations and people.

Tschaoon bay ran deep into the land southward and eastward, and probably it was from this place that TARAS STADUCHIN crossed over to the eastern sea. Northward from Tschaoon bay, the coast took something of a westerly direction. The most advanced part of the land seen, was a high mountain far off to the north-east, SHALAUROF being then to the north of the island Sabedei.

Among the attempts to determine the north-eastern limits of Asia, is to be reckoned the march of a small Kossak army under the command of a Captain PAULUTZKI, which after traversing the Tschuktzki country, from the gulf of Anadir to the Icy sea, marched along the shore eastward, with intention to trace round the north-east coast; but the land being found to run far north, and their provision being expended, PAULUTZKI was obliged to relinquish the attempt.

Such was the state of the information which had been obtained, when Captain Cook arrived in the sea of Kamtschatka. Of three passages said to have been accomplished from the Icy sea to the Eastern sea, the manner of performing the voyage is distinctly expressed only in one; and that is speci-

fied to have been by crossing an isthmus, and not by sailing round a promontory.

I come now to speak of what was observed in the voyage of Captain Cook. The first extraordinary circumstance noticed on arriving in Bering's Strait, was a sudden disappearance of the tides. To the south of Bering's Strait, both on the Asiatic and on the American side, we had experienced strong tides. Near one of the Aleutian islands, where the ships had anchored, a tide was found running at the rate of seven miles per hour (as measured by the log) smooth and unruffled; at the same time, in the middle of the channel between this island and the next, the rapidity of the stream kept the waters in a foam during four hours of the tide.

Bering's Strait is formed at the narrowest part by two points, one named Cape Prince of Wales, which is the westernmost land known of America; and the other named Cape East, being the most eastern known land of Asia. Whilst we were to the south, and within sight of the Cape Prince of Wales, the wind and current, being in contrary directions, raised a sea that frequently broke over the ships. On arriving within Cape Prince of Wales, the ships anchored, the east cape of Asia then bearing due west; and it is remarked by Captain Cook, that whilst the ships lay there at anchor, which was from six to nine in the evening, there was found little or no current; nor could it be perceived that the water either rose or fell. Afterwards, whilst to the northward of Bering's Strait, we always had soundings of moderate depth, which enabled us to measure the stream with great exactness; and we seldom found one running at

the rate of more than half a mile per hour : at no time at the rate of a mile.

It is doubtless possible, that large bodies of ice taking the ground may choak up a channel between two seas, so as wholly to obstruct the tides ; but it is not probable, that such should have been the case between this sea and the Icy sea, through the whole month of August and the beginning of September, to which time Captain Cook remained in the sea north of Bering's Strait. And the same stillness of the waters was observed there in the ensuing summer. The bottom also, not being swept by streams, was of soft ooze, so tenacious that the sounding line in common use was not strong enough to disengage the lead, and it became necessary to sound with a smaller lead and stronger line.

From Bering's Strait, Captain Cook coasted the land of America, to the north and north-eastward, as near as weather and other circumstances would admit, till, in latitude  $70^{\circ} 40' N.$  his farther advance was stopped by a close body of ice to the N. and N. E. The ice, though compact, was not fixed, and was found to be approaching the American coast. Captain Cook remarks, ' as the ice was driving down upon us, it was ' evident, that if we remained longer between it and the land, ' it would drive us ashore, unless it should happen to take ' the ground before us.' Captain Cook on this, as on many other occasions, accommodated his views to the circumstances present, that there might be no unprofitable expenditure of time ; and it may be said that in all his changes of plan, his measures were so directly adapted to his purpose, that without other communication his intentions were imme-

diately comprehended. The month of August was at this time far advanced; and to make the most of the short remainder of the season, Captain Cook stood on westward for the coast of Asia, keeping in as high a latitude as the ice would permit. On the north side of his track were extensive bodies of ice, such as we call field ice. These generally are accumulations of loose floating pieces, which have been brought together by the wind blowing a length of time in one direction towards a coast. When the ice is so driven to land, it is evident that the inner pieces only take the ground; the rest are confined by the wind, and when a change in the wind afterwards sets the ice from the land, it will preserve a position parallel to that which the coast gave it, until the strength and variety of winds have time to disperse it.

The deepest soundings we had in all this sea did not exceed thirty fathoms; and this depth was found in latitude  $68^{\circ} 45'$ , midway between the coast of Asia and the coast of America. Northward, beyond that latitude, the soundings were observed to decrease: and in our run from the coast of America westward, we did not find the depth to increase, as is usual in running from land. Which peculiarities made us conclude, that there was land at no great distance from us to the north, and that we were sailing on a line parallel with its coast. Northward of our track also, as we ran towards the Asiatic coast, was a continuity of ice which seemed as if formed into a close barrier by a long extent of coast.

The nature of the soundings, with the absence of tide, gave to this sea so much the character of a mediterranean sea, that some on board, in particular Mr. BAILEY the astronomer, and myself, who being in the same ship communed

on the subject, were strongly of opinion that we were inclosed by land to the north, and that Asia and America were there joined; but we dared not venture to call in question the authority of MULLER.

If it is asked, whence then can come the great quantity of ice which is found in this sea? an answer readily presents itself. It is known that the Icy sea is frozen over every winter; and the northern part of this sea also has been known to be frozen over early in the winter. When the return of summer breaks up the ice, it will of course fill the sea with broken pieces.

Since the voyage of Captain Cook, little has been done towards ascertaining the termination of Asia. Commodore BILLINGS, an Englishman in the service of Russia, was employed to command an expedition for this express purpose, furnished with every assistance that could be devised towards ensuring success. His instructions directed him to make his departure from the river Kolyma, and to endeavour to follow the coast thence eastward by sea; with this additional instruction, 'that if coasting by sea should be found impracticable, and the information obtained on the spot should give hopes of effecting the purpose by land, he was then to endeavour to trace the coast by going in the winter in sledges over the ice.' Kossaks who had before been in the Tschuktzki country were selected to accompany Commodore BILLINGS, and among them was one who was the son of a Tschuktzki woman. 'Make agreement with them,' said the Instructions, 'or without agreement pay them the double of what is allowed to people who serve at sea. And whereas on a chart transmitted to us in the year 1764, a coast is marked

‘ opposite to the Kolyma, which stretches as a continuation  
‘ of the continent of America, it will be of use if you can  
‘ survey and describe the circumstances of that land.’

The history of Commodore BILLINGS’s expedition may be told in few words. He sailed with two light vessels out of the Kolyma, on the 24th of June, 1787. He met with much ice, and on the 20th of July, without having reached so far eastward as the island Sabedei, he relinquished the farther prosecution of the attempt by sea; at the very season, in fact, which was the most proper that could have been chosen for his outset from the Kolyma.\* In this short attempt, Commodore BILLINGS did not even get sight of the north land; but an approach to it was to be inferred from the soundings. The snow and ice were at this time rapidly dissolving, so as to cause currents to set for several days continuance in one direction; and during that time, the water on the surface of the sea was so fresh as to be used for cooking, and sometimes for drinking.

Afterwards, Commodore BILLINGS, with the consent of the Tschuktzki people, made a progress by land along a part of the Tschuktzki coast. Most unaccountably, he chose for his point of outset for this journey, the bay of Saint Lawrence, which is on the south side of Bering’s Strait. He landed in the month of August with a party consisting of twelve persons, and travelled northward, keeping near the coast as far as to a bay called Klutchenie, which is at the extreme part of the Asiatic coast seen in Captain Cook’s voyage. By this time, winter had set in, and the sea was frozen over. The

\* His lieutenant (the present Admiral Saretcheff) proposed and offered to proceed north-eastward in a light boat; but his offer was not accepted.

season proved a severe one; the cold was extreme, and the whole party had already been so much fatigued and harassed with their journey from the bay of St. Lawrence, that they were unable to pursue the coast farther northward. They afterwards, in their route westward towards the Kolyma, crossed a river, which, according to information from the Tschuktzki people, discharged itself into the sea seventy versts more north than the bay of Klutchenie.

In all this uncertainty respecting the north-east termination of Asia, the particular most worthy notice is, that the Tschuktzki people themselves do not appear, from any of the accounts which have been published, to know the extent of their country to the north, or to be able to give any satisfactory information concerning it, though it is known that some of their nation have travelled from the continent to islands in the Icy sea. The charts of the present century, which have assumed to give a limitation to Asia, differ a degree in the latitude of their northernmost cape.

It does not in the smallest degree detract from the merit or fame of the first discoverers, to question their having navigated round the north-east of Asia. Whether they sailed round a promontory, or crossed an isthmus, they are equally entitled to the honour of having first discovered for their countrymen the sea east of Kamtschatka. The most probable chance of completing the discovery, or of arriving at any certainty concerning a north-eastern boundary of Asia, is doubtless that which was recommended by the Russian admiralty to Commodore BILLINGS; i. e. to trace the coast in sledges when the sea is frozen.

The principal argument, and it is not a weak one, against

the probability of Asia and America being joined, is, that northern land in the Icy sea has repeatedly been supposed, and reported, to be an extension of the American continent; and it does not appear in any of the accounts to have been reported, or supposed, to join the Tschuktzki country. In Captain KRUSENSTERN'S memoir on the lands in the Icy sea, it is related, that very lately was explored an extent of 250 versts of coast of a northern land, which has been named the New Siberia. At the easternmost part which was seen of this land, the coast was observed to take a direction to the north-west. This direction of the coast might keep at a distance the supposition that it joined the Tschuktzki land: nevertheless, the coast may, and is supposed by the Russian discoverer, M. HEDERSTROOM, to turn afterwards to the east; for he gives it as his opinion that the New Siberia is a prolongation of America.

The Tschuktzki people would not explore farther north than afforded a prospect of reward for their pains. This, it is seen, has led them to some of the islands in the Icy sea; but no marks are noticed of their having been to the New Siberia.

The times for making expeditions of discovery in the Icy sea has generally been predetermined; but it would be more conducive to success to watch for favourable seasons. The state of the surface of the sea, when frozen, has also been found subject to much variation, depending upon the strength of the wind when the sea begins to be frozen. If in a calm, the surface will be smooth; if in boisterous weather, it will be rugged and bad for travelling.